

Scolecodonts as a Paleosalinity Indicator: Pls: Lisa Weber (Columbia College) and Dallas Abbott (Lamont-Doherty Earth Observatory of Columbia University)

Abstract

Scolecodonts are the jawbones of annelid worms. They are superconcentrators of iodine. Our preliminary work shows evidence that the iodine content of scolecodonts is directly related to the salinity of the water they lived in. (Figure 1).

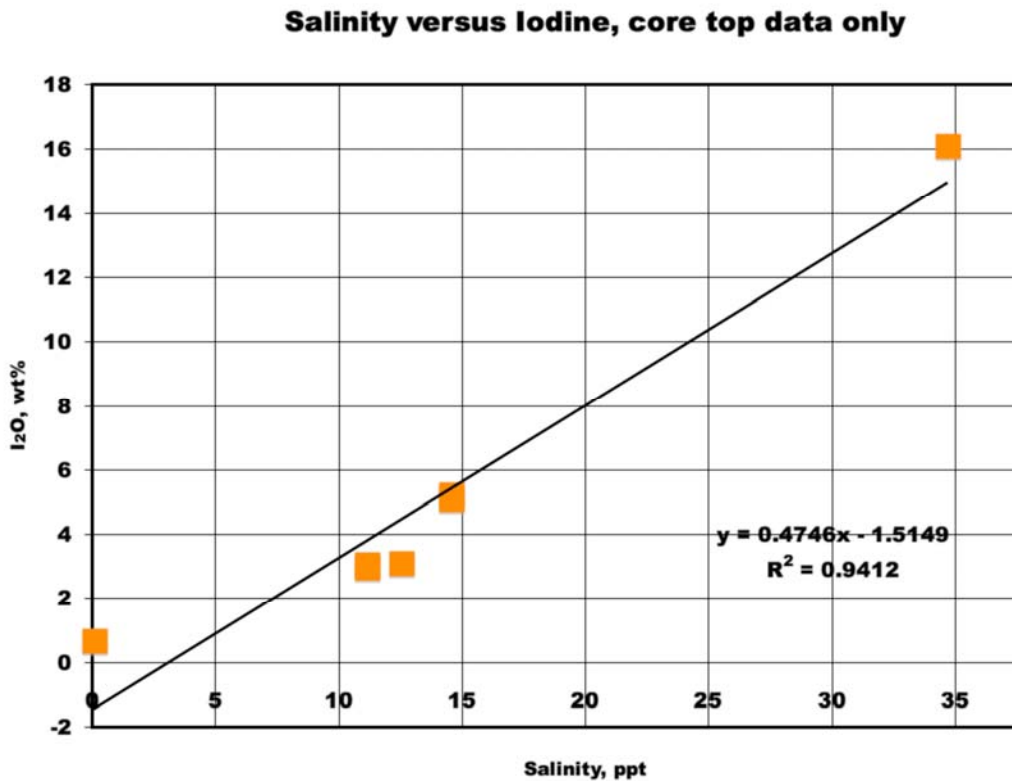


Figure 1. Orange squares: Iodine oxide content of scolecodonts (I_2O) from core tops versus the bottom salinity at each coring site. The line is a best fit to the data. The relatively high R^2 of 0.94 suggests a good correlation between iodine content and salinity. The sample on the far right is from the open ocean.

We are engaged in calibrating the method by making more quantitative measurements of the iodine content of the scolecodonts. These measurements require developing a good method of separating the chitinous outer “skin” of the scolecodont from the inner part of the scolecodont. The latter concentrates some heavy metals but not iodine. We are exploring using soaks in mild acid to help achieve this separation. We will then have the chitinous outer “skin” made into thin sections for analysis on the microprobe. Our quantitative measurements of iodine will be compared to the salinity levels of our core top coring sites.